

FLOW TEST DATA:
STATIC: 90 PSI RESIDUAL: 57 PSI
FLOW: 2100 GPM
DATE: 12-30-2024
LOCATION: HYDRANT 023-083 FH
NE SYCAMORE ST APPROX 370' EAST OF SLOAN
STATIC/RESIDUAL ELEV. APPROX 996'
SOURCE: LEE'S SUMMIT WATER UTILITIES

**BUILDING 1
TYPE C
993.25'**

**BUILDING 2
TYPE C
995.00'**

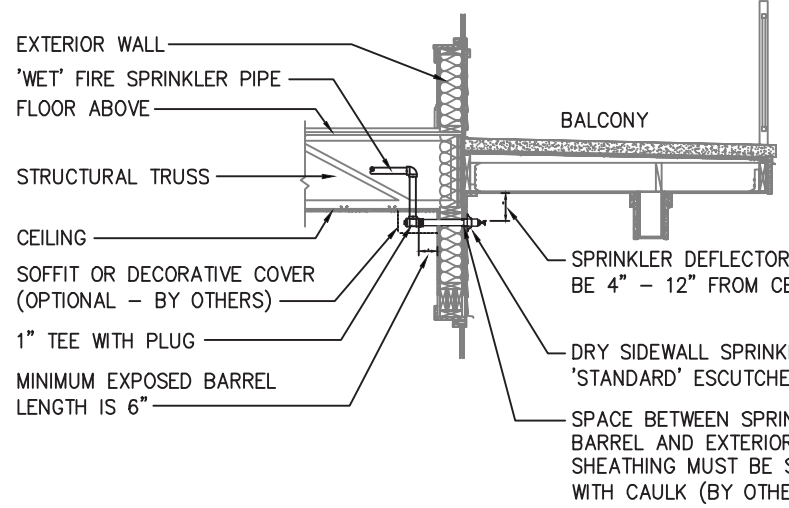
**BUILDING 4
TYPE A
999.75'**

**BUILDING 5
TYPE C ALTERNATE
(CLUBHOUSE)
999.25'**

**BUILDING 3
TYPE A
999.75'**



FIRE PROTECTION SITE PLAN
1" = 50'



BALCONY DRY SIDEWALL
1/4" = 1'-0" (APPROX)

SPRINKLER LEGEND - BUILDING 'A' (TYPICAL OF 2)

SYMBOL	QUANTITY	MANUFACTURE	MODEL	RESPONSE	TYPE	SPRINKLER ID	FRESH	THREAD	K-FACTOR	TEMP	TYPE	ESCU/CHEN	FINISH	NOTES
187	1	Reliable	F1Res44	Residential	HSW	R3531	White	1/2"	4.4	155	Semi-Recessed	White		
24	1	Reliable	F1Res44	Residential	HSW	R3531	Chrome	1/2"	4.4	175	Semi-Recessed	Chrome		
1	1	Reliable	F1FR	Quick	HSW	R3635	Brass	1/2"	5.6	200	None	N.A.		
12	1	Reliable	F3QR56	Quick	Dry HSW	R5734	Chrome	1"	5.6	200	Standard	Chrome		
12	1	Reliable	DH56	Quick	EC Dry HSW	RA1664	Chrome	1"	5.6	200	Standard	Chrome		

*Note 1 here

Total Sprinklers (single Building 'A' only) = 236
Total Sprinklers (all 2 'A' Buildings) = 472

SPRINKLER LEGEND - BUILDING 'C' (TYPICAL OF 2)

SYMBOL	QUANTITY	MANUFACTURE	MODEL	RESPONSE	TYPE	SPRINKLER ID	FRESH	THREAD	K-FACTOR	TEMP	TYPE	ESCU/CHEN	FINISH	NOTES
260	1	Reliable	F1Res44	Residential	HSW	R3531	White	1/2"	4.4	155	Semi-Recessed	White		
260	1	Reliable	F1Res44	Residential	HSW	R3531	Chrome	1/2"	4.4	175	Semi-Recessed	Chrome		
1	1	Reliable	F1FR	Quick	HSW	R3635	Brass	1/2"	5.6	200	None	N.A.		
12	1	Reliable	F3QR56	Quick	Dry HSW	R5734	Chrome	1"	5.6	200	Standard	Chrome		
24	1	Reliable	DH56	Quick	EC Dry HSW	RA1664	Chrome	1"	5.6	200	Standard	Chrome		

*Note 1 here

Total Sprinklers (single Building 'C' only) = 333
Total Sprinklers (all 2 'C' Buildings) = 666

SPRINKLER LEGEND - BUILDING 'CLUBHOUSE'

SYMBOL	QUANTITY	MANUFACTURE	MODEL	RESPONSE	TYPE	SPRINKLER ID	FRESH	THREAD	K-FACTOR	TEMP	TYPE	ESCU/CHEN	FINISH	NOTES
242	1	Reliable	F1Res44	Residential	HSW	R3531	White	1/2"	4.4	155	Semi-Recessed	White		
34	1	Reliable	F1Res44	Residential	HSW	R3531	Chrome	1/2"	4.4	175	Semi-Recessed	Chrome		
1	1	Reliable	F1FR	Quick	HSW	R3635	Brass	1/2"	5.6	200	None	N.A.		
13	1	Reliable	F3QR56	Quick	Dry HSW	R5734	Chrome	1"	5.6	200	Standard	Chrome		
24	1	Reliable	DH56	Quick	EC Dry HSW	RA1664	Chrome	1"	5.6	200	Standard	Chrome		
4	1	Reliable	F1FR56	Quick	PENDENT	RA1414	Chrome	1/2"	5.6	155	2-Pc Extended	Chrome	1	
18	1	Reliable	F1Res49	Residential	PENDENT	R3516	White	1/2"	4.9	155	2-Pc Extended	White	1	

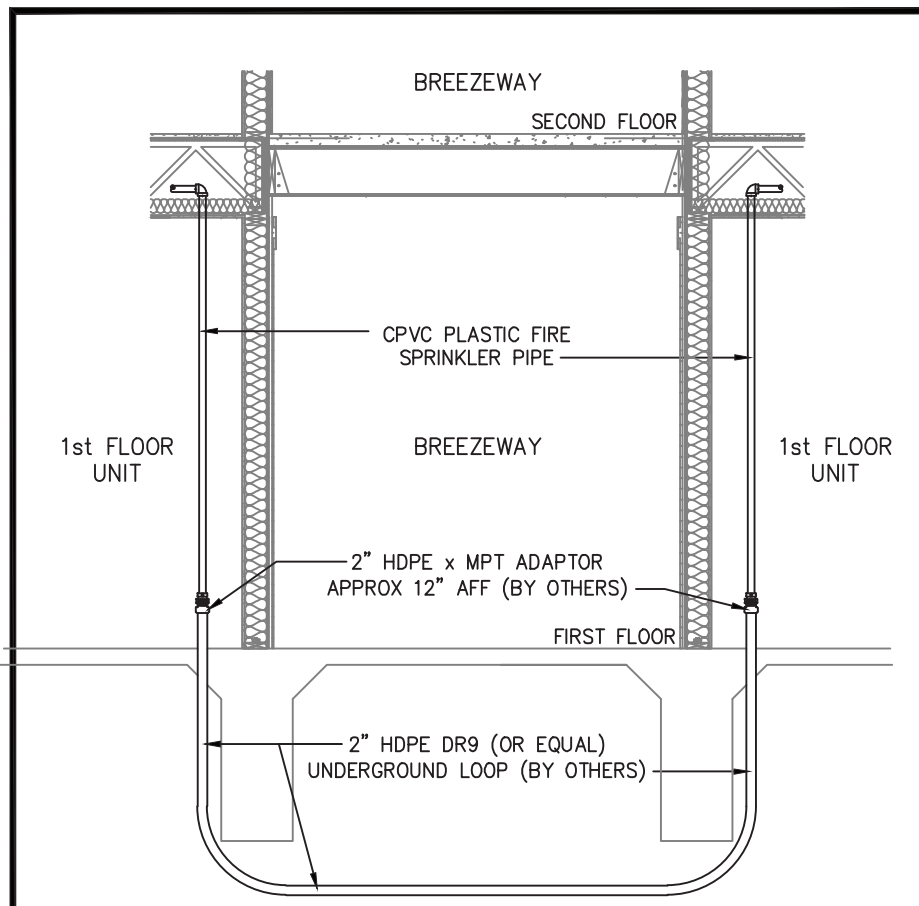
*This sprinkler installed at bottom of a 1" CPVC pipe drop.

Total Sprinklers (single 'Clubhouse' only) = 336
Total Sprinklers (all 1 'Clubhouse' Buildings) = 336

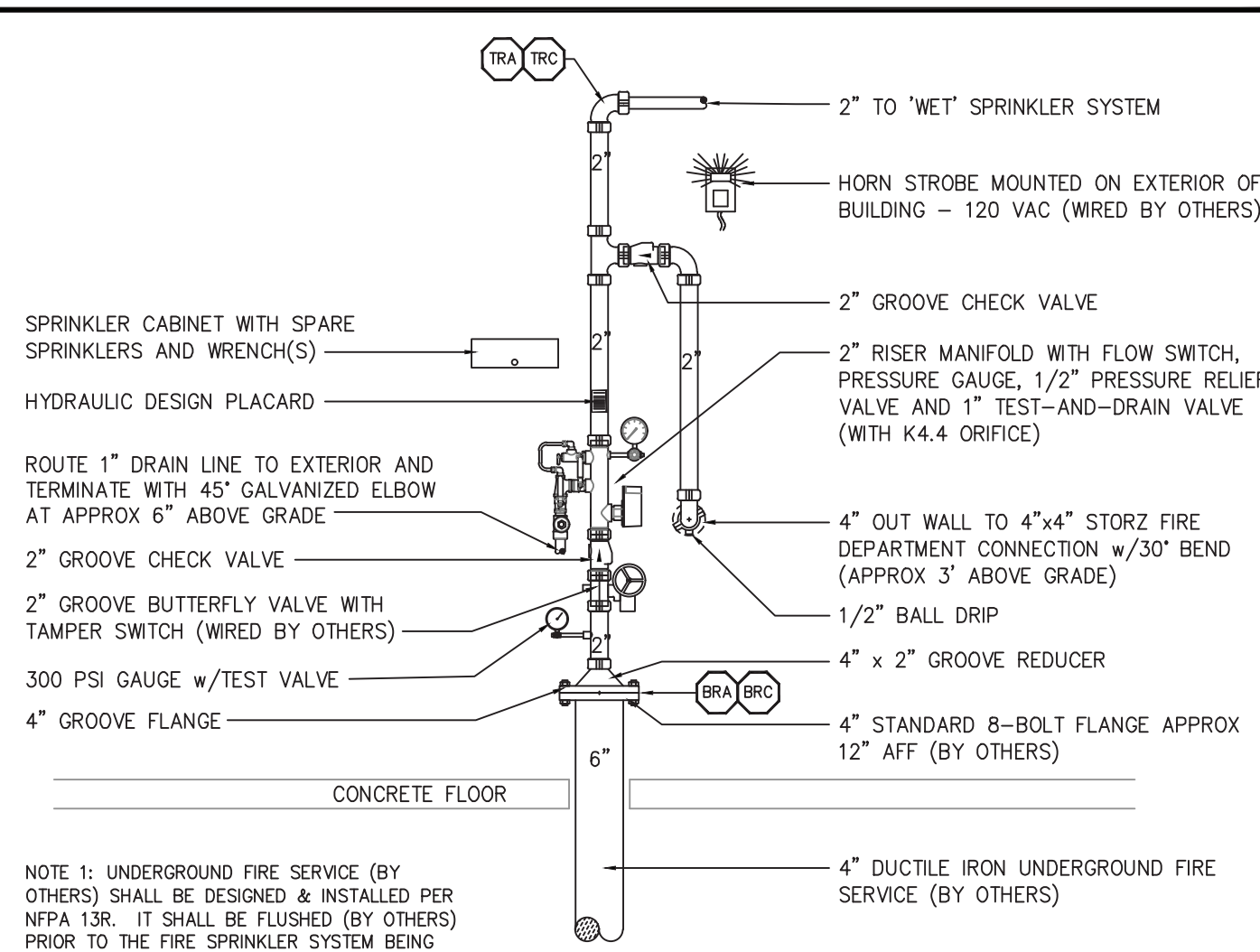
KEY NOTES*

- Total area being sprinklered: Building 'A' is approx 22,650 sf (total of 1st, 2nd and 3rd floors). Building 'C' is approx 32,240 sf (total of 1st, 2nd and 3rd floors). Building 5 (Clubhouse) is approx 32,240 sf (total of 1st, 2nd and 3rd floors). Total area being sprinklered this contract (2 'A' buildings plus 2 'C' buildings plus 1 'Clubhouse' building) = 117,130 sf.
- 4" underground fire protection service (by others). See site plan for continuation.
- 2" system riser - see detail on sheet FPI.
- 4" Starz (on 30" bend) x 4" NPT fire department connection installed approximately 3' above finish grade. ID pipe to read "AUTO SPRK". 4" Starz plus. Locate FDC on side of Water Room that is nearest to the closest fire hydrant.
- Horn/strobe alarm mounted above FDC - 120 VAC (wiring by others).
- 2" HDPE under-slab transfer pipe. This pipe installed under the Slab/Corridor concrete slab (by others). Both ends shall terminate with a 2" male NPT adapter approximately 1'-0" AFF.
- 1-1/2" up/down to HDPE under-slab transfer pipe. See keynote 7.
- 1-1/4" up/down to HDPE under-slab transfer pipe. See keynote 7.
- 3/4" up to 2nd Floor.
- 3/4" up from 1st Floor and 3/4" up to 3rd Floor.
- 3/4" up from 2nd Floor.
- Sprinkler pipe down through ceiling and out to "dry" sidewall sprinkler protecting patio/balcony. This section of sprinkler pipe will be exposed to view unless concealed by a soffit or decorative cover (soffit or decorative cover by others). See detail.
- Install this sprinkler pipe in attic space as low as possible. All thermal insulation must be installed ABOVE this pipe, NOT BELOW IT. Sprinkler pipe may need to be tented to prevent thermal insulation from falling below it. Insulation and tenting is by others. See detail.
- 3/4" up to 3rd Floor.
- 3/4" up to 2nd Floor.
- 1" up from 1st Floor and 3/4" up to 3rd Floor.
- 2" up/down to HDPE under-slab transfer pipe. See keynote 7.
- 1" up from 1st Floor and 1" up to 3rd Floor.
- 1" up to 3rd Floor.
- 1" up from 2nd Floor.

*Not all notes are used on every sheet.



BREEZEWAY UG LOOP DETAIL
1/4" = 1'-0" (APPROX)



NOTE 1: UNDERGROUND FIRE SERVICE (BY OTHERS) SHALL BE DESIGNED & INSTALLED PER NFPA 13R. IT SHALL BE FLUSHED (BY OTHERS) PRIOR TO THE FIRE SPRINKLER SYSTEM BEING CONNECTED.

NOTE 2: ALL ELECTRICAL WIRING (VALVE TAMPER SWITCH, FLOW SWITCH & EXTERIOR ALARM) IS BY OTHERS.

NOTE 3: ALL PIPE & FITTINGS INSIDE THE RISER ROOM SHALL BE STEEL (NO CPVC).

NOTE 4: FIRE PROTECTION SYSTEM BACKFLOW PREVENTOR IS LOCATED IN A PIT ON THE INCOMING FIRE SERVICE (BY OTHERS). SEE SITE PLAN.

GENERAL NOTES

- Total area being sprinklered: Building 'A' is approx 22,650 sf (total of 1st, 2nd and 3rd floors). Building 'C' is approx 32,240 sf (total of 1st, 2nd and 3rd floors). Building 5 (Clubhouse) is approx 32,240 sf (total of 1st, 2nd and 3rd floors). Total area being sprinklered this contract (2 'A' buildings plus 2 'C' buildings plus 1 'Clubhouse' building) = 117,130 sf.
- The sprinkler contractor's work does NOT include the following:
 - Underground fire service slubbed into the building. Underground service must be designed, installed, tested and flushed (by others) to the requirements of NFPA #13R. It shall terminate with a standard flange approximately 12" AFF installed pump and 2-inch.
 - Electrical power & wiring of: Flow switches, valve tamper switches and alarm devices.
- Materials and installation must meet the requirements of NFPA #13R "Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height". In addition, any specially listed materials or devices must be installed in accordance with their listing.
- The fire sprinkler system has been hydraulically designed using internal pipe diameters and C-factors of listed CPVC pipe (sized 1" - 2"), and schedule 40 steel pipe (pipe located in the Water Room). Listed CPVC pipe (sized 1" - 2") shall be used throughout the project except in locations where it's listing does not allow it. In locations where CPVC is not allowed, schedule 40 steel pipe shall be used.
- Location and installation of pipe supports (hangers, vertical restraints and guides) must meet the requirements of NFPA #13R and the special listing requirements (if applicable) of the pipe and supports.
- Seismic protection is not required on this project.
- Pipe lengths shown on these plans are "center-to-center" lengths.
- Pipe elevations shown on the drawings are approximate and must be field verified.
- Sprinkler and pipe locations shown on the drawings are approximate. Minor field changes may be necessary. All changes must meet the design criteria outlined on these plans and meet the criteria of NFPA 13R.
- This sprinkler system is designed as a "wet" system and will be filled with water while in service. It must be maintained at or above 40°F at all times.
- The fire sprinkler contractor is responsible for performing all acceptance tests as required by NFPA #13R (See Chapter 10) and complete the "Contractor's Material and Test Certificate(s)".
- Upon "Final Acceptance", the owner is responsible for proper maintenance of the fire sprinkler system as established in the latest edition of NFPA #25 "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems". Upon "Final Acceptance", the owner is responsible for providing adequate heat to prevent "wet" sprinkler pipe from freezing.

MISC SYMBOL LEGEND

- 1-2 Approximate elevation of centerline of pipe above finish floor.
- 1-2 Approximate distance from roof deck down to centerline of pipes.
- Hydraulic reference number - refer to hydraulic calculations.
- Key note - see Key Notes.
- Fabrication mark - identifies entire main or branchline.
- Fabrication mark - identifies individual pipes.
- Fabrication mark - identifies individual pipes.
- Vertical section of sprinkler pipe.
- Upper number is the nominal pipe diameter. Bottom number is the center-of-fitting to center-of-fitting pipe length in feet and inches.
- Location of hanger.
- Height of finish ceiling.

SPECIALLY LISTED MATERIALS AND DEVICES

The following specially listed materials and devices will be used on this project:

Reliable model "F1Res44" (R3516, K4.9) Residential pendant sprinkler. The sprinkler pipe on this project has been hydraulically sized to allow this sprinkler to cover a maximum area of 16' x 16' with a maximum distance from adjacent walls of 8'. Minimum spacing between these sprinklers is 8'. Sprinkler shall be installed so deflector-to-ceiling distance is 1" to 4". See Reliable Bulletin 135 for complete design/installation details.

Reliable model F1Res44 HSW (R3531, K4.4) Residential sidewall sprinkler. Except as noted, the sprinkler pipe on this project has been hydraulically sized to allow this sprinkler to cover a maximum area of 16' wide x 16' throw with a maximum distance from adjacent side walls of 8'. In the Kitchen area of the B1, B1A, and C1 Units, this sprinkler can protect a maximum area of 16' wide x 16' throw with a maximum distance from adjacent side walls of 8'. In Bedroom 1 of the B1, B1A, and C1 Units, this sprinkler can protect a maximum area of 16' wide x 16' throw with a maximum distance from adjacent side walls of 8'. Minimum spacing between these sprinklers is 8'. Sprinklers shall be installed so deflector-to-ceiling distance is 4" to 6". See Reliable Bulletin 135 for complete design/installation details.

Reliable model "TD56" (K5.6) Dry Quick Response, Extended Coverage, Horizontal Sidewall Sprinkler. The sprinkler pipe on this project has been hydraulically sized to allow this sprinkler to cover a maximum area of 26' wide x 8' throw with a maximum distance from adjacent walls of 14". Minimum spacing between these sprinklers is 16'. Sprinklers shall be installed so deflector-to-ceiling distance is 4" to 12". See Reliable Bulletin 016 for complete design/installation details.

Listed CPVC plastic pipe & fittings. All manufacturers' installation restrictions and installation requirements must be followed. Restrictions and/or special requirements apply (but are not limited) to exposed installations, ordinary hazard occupancies, wet/dry installations, longer spacing & location, rated wall penetrations and chemical compatibility. Visit <https://www.lubrizol.com/en/CPVC/FBC2020system2020Compatible2020program> for a current list of compatible and incompatible products. Read and follow all restrictions and requirements.

SPECIFIC DESIGN CRITERIA & APPROVAL INFO

- The fire sprinkler systems shown on these plans are "wet-pipe systems" designed to the requirements of NFPA #13R (2016 edition). Occupancies are 3-story apartment buildings: IRC occupancy classification "R-2" and NFPA 13R "Residential" hazard.
- Except for balconies/patios and a few rooms in the Clubhouse area, sprinklers throughout this project are residential type. All other sprinklers are quick-response type.
- Per section 6.5, sprinklers are not required in: small bathrooms, small closets, linen closets and pantries within the dwelling units, porches, some balconies, corridors, common areas, entryways and stairs that are open and attached, attics, penthouse equipment rooms, elevator machine rooms, crawl spaces, floor/ceiling spaces, noncombustible elevator shafts and other concealed spaces not used or intended for living purposes or storage; and closets on exterior balconies and exterior breezeways/corridors. *See section 6.5 for complete text.
- Design Criteria - Design Area #A1 (Building A 3rd Floor B1 Unit): "Residential" Hazard. Per section 7.1.1.3.1, calc all sprinklers within the compartment, up to a maximum of 4.
The Reliable model "F1Res44" residential sidewall sprinkler is being used in this unit to protect a maximum area of 16' wide x 16' throw (outlets A1A and A1C) and a maximum area of 16' wide x 18' throw (outlet A1B). Minimum flow for the Reliable model "F1Res44" sprinkler at a 16' x 16' spacing (horizontal ceiling, 155' deflector-to-ceiling distance of 4" to 6") is 16 gpm. Minimum flow for the Reliable model "F1Res44" sprinkler at a 16' x 18' spacing (horizontal ceiling, 155' deflector-to-ceiling distance of 4" to 6") is 18 gpm. Therefore calc all 3 sprinklers in the compartment at a minimum flow of 16 gpm (outlets A1A and A1C) and 18 gpm (outlet A1B).
- Design Criteria - Design Area #C1 (Building 5 3rd Floor B1 Unit): "Residential" Hazard. Per section 7.1.1.3.1, calc all sprinklers within the compartment, up to a maximum of 4.
The Reliable model "F1Res44" residential sidewall sprinkler is being used in this unit to protect a maximum area of 16' wide x 16' throw (outlets C1A and C1C) and a maximum area of 16' wide x 18' throw (outlet C1B). Minimum flow for the Reliable model "F1Res44" sprinkler at a 16' x 16' spacing (horizontal ceiling, 155' deflector-to-ceiling distance of 4" to 6") is 16 gpm. Minimum flow for the Reliable model "F1Res44" sprinkler at a 16' x 18' spacing (horizontal ceiling, 155' deflector-to-ceiling distance of 4" to 6") is 18 gpm. Therefore calc all 3 sprinklers in the compartment at a minimum flow of 16 gpm (outlets C1A and C1C) and 18 gpm (outlet C1B).
- Design Criteria - Design Area #C2 (Building 5 3rd Floor A2 Unit): "Residential" Hazard. Per section 7.1.1.3.1, calc all sprinklers within the compartment, up to a maximum of 4.
The Reliable model "F1Res44" residential sidewall sprinkler is being used in this unit to protect a maximum area of 16' wide x 16' throw. Minimum flow for the Reliable model "F1Res44" sprinkler at a 16' x 16' spacing (horizontal ceiling, 155' deflector-to-ceiling distance of 4" to 6") is 16 gpm. Therefore calc all 3 sprinklers in the compartment at a minimum flow of 16 gpm.
- Design Criteria - Design Area #C3 (Building 5 3rd Floor A2 Unit): "Residential" Hazard. Per section 7.1.1.3.1, calc all sprinklers within the compartment, up to a maximum of 4.
The Reliable model "F1Res49" residential pendant sprinkler is being used in this unit to protect a maximum area of 16' x 16'. Minimum flow for the Reliable model "F1Res49" sprinkler at a 16' x 16' spacing (deflector-to-ceiling distance of 1" to 4") is 13 gpm. Therefore calc 4 sprinklers in the compartment at a minimum flow of 13 gpm.
- The Authority Having Jurisdiction is: Lee's Summit Fire Department, 237 SE Douglas Street, Lee's Summit, MO 64063 (816) 969-1300.
- Approvals must be obtained from: Local AIA Owner.



MISSOURI PE COA #2016025677
Engineering, LLC
1624 N Glen Eilyn
Independence, MO 64056
816-516-9540

BAMFORD FIRE SPRINKLER Co., Inc.

5134 MERRIAM DRIVE - SHAWNEE MISSION, KANSAS 66203
(913) 432-6294 FAX: (913) 432-6294 E-MAIL: markm@bamfordfire.com

DOUGLAS STATION APARTMENTS
NW SLOAN & NE SYCAMORE ST
LEE'S SUMMIT, MISSOURI

PROJECT:

DATE DRAWN: 5-5-2025
REVISION DATE: 5-5-2025
SHEET NO: 1
BY: 13

NOTE:
All vertical pipes up from 2nd Floor are 3/4".

3
FP2
BUILDING TYPE 'A' - 3rd FLOOR
1/8" = 1'-0" (Finish Floor = 121' - 4.29')
Buildings 3 and 4

NOTE:
Vertical pipes up from 1st Floor are 3/4" (Keynote 11) or 1" (Keynote 17). All vertical pipes up to 3rd floor are 3/4".

2
FP2
BUILDING TYPE 'A' - 2nd FLOOR
1/8" = 1'-0" (Finish Floor = 110' - 8.5')
Buildings 3 and 4

NOTE:
Vertical pipes up to 2nd Floor are 3/4" (Keynote 10) or 1" (Keynote 16).

1
FP2
BUILDING TYPE 'A' - 1st FLOOR
1/8" = 1'-0" (Finish Floor = 100' - 0")
Building 3, Building 4 is similar

TYPICAL MAXIMUM/MINIMUM SPACING FOR RESIDENTIAL SIDEWALL SPRINKLERS U.N.O.

HYDRAULIC DESIGN AREA #A1

BUILDING A 3rd FLOOR B1 UNIT
NODES A1A, A1B, A1C
CALC. OUTLET A1A @ 16 GPM (16'x16" SPACING)
CALC. OUTLET A1B @ 18 GPM (16'x16" SPACING)
CALC. 3 TOTAL SPRINKLERS
DEMAND @ NODE "B1A" = 56 GPM @ 72.0 PSI
DEMAND @ NODE "PC3" = 56 GPM @ 83.1 PSI

SPRINKLER LEGEND - BUILDING 'A' (TYPICAL OF 2)

SYMBOL	QUANTITY	MANUFACTURE	MODEL	RESPONSE	TYPE	SPRINKLER D.	FINISH	THREAD	K-FACTOR	TEMP.	TYPE	ESCUTCHION	FINISH	NOTES
187	Reliable	F1Res44	Residential	HSW	R3531	White	1/2"	4.4	155	Semi-Recessed	White			
24	Reliable	F1Res44	Residential	HSW	R3531	Chrome	1/2"	4.4	175	Semi-Recessed	Chrome			
1	Reliable	F1FR	Quick	HSW	R3635	Brass	1/2"	5.6	200	None	N.A.			
12	Reliable	F3QR56	Quick	Dry HSW	R5734	Chrome	1"	5.6	200	Standard	Chrome			
12	Reliable	DH56	Quick	EC Dry HSW	RA1664	Chrome	1"	5.6	200	Standard	Chrome			
Total Sprinklers (single Building 'A' only)											236			
Total Sprinklers (all 2 'A' Buildings)											472			

1 Note 1 here

KEY NOTES*

- Closet/pantry not sprinklered per NFPA 13R section 6.6.3.
- Bathroom not sprinklered per NFPA 13R section 6.6.2.
- 4" underground fire protection service (by others). See site plan for continuation.
- 2" system riser - see detail on sheet FP1.
- 4" Storz (on 30' bend) x 4" NPT fire department connection installed approximately 3' above finish grade. @ plate to read "AUTO SPRK". 4" Storz plug. Locate FDC on side of Water Room that is nearest to the closest fire hydrant.
- Horn/strobe alarm mounted above FDC - 120 VAC (wiring by others).
- 2" HDPE under-slab transfer pipe. This pipe installed under the Stair/Corridor concrete slab (by others). Both ends shall terminate with a 2" male NPT adapter approximately 1'-0" AFF.
- 1-1/2" up/down to HDPE under-slab transfer pipe. See keynote 7.
- 1-1/4" up/down to HDPE under-slab transfer pipe. See keynote 7.
- 3/4" up to 2nd Floor.
- 3/4" up from 1st Floor and 3/4" up to 3rd Floor.
- 3/4" up from 2nd Floor.
- Sprinkler pipe down through ceiling and out to 'dry' sidewall sprinkler protecting patio/balcony. This section of sprinkler pipe will be 'exposed to view' unless concealed by a soffit or decorative cover (soffit or decorative cover by others). See detail.
- Install this sprinkler pipe in attic space as low as possible. All thermal insulation must be installed ABOVE this pipe, NOT BELOW IT. Sprinkler pipe may need to be 'tented' to prevent thermal insulation from falling below it. Insulation and tenting is by others. See detail.
- 3/4" up to 3rd Floor.
- 1" up to 2nd Floor.
- 1" up from 1st Floor and 3/4" up to 3rd Floor.
- 2" up/down to HDPE under-slab transfer pipe. See keynote 7.
- 1" up from 1st Floor and 1" up to 3rd Floor.
- 1" up to 3rd Floor.
- 1" up from 2nd Floor.

*Not all notes are used on every sheet.

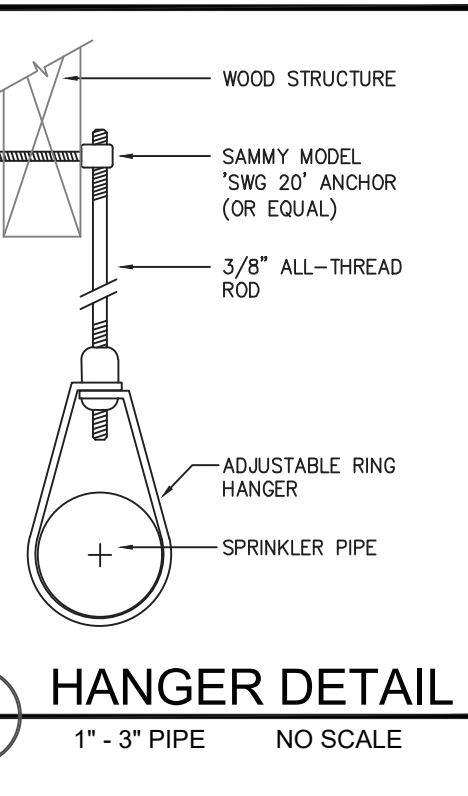
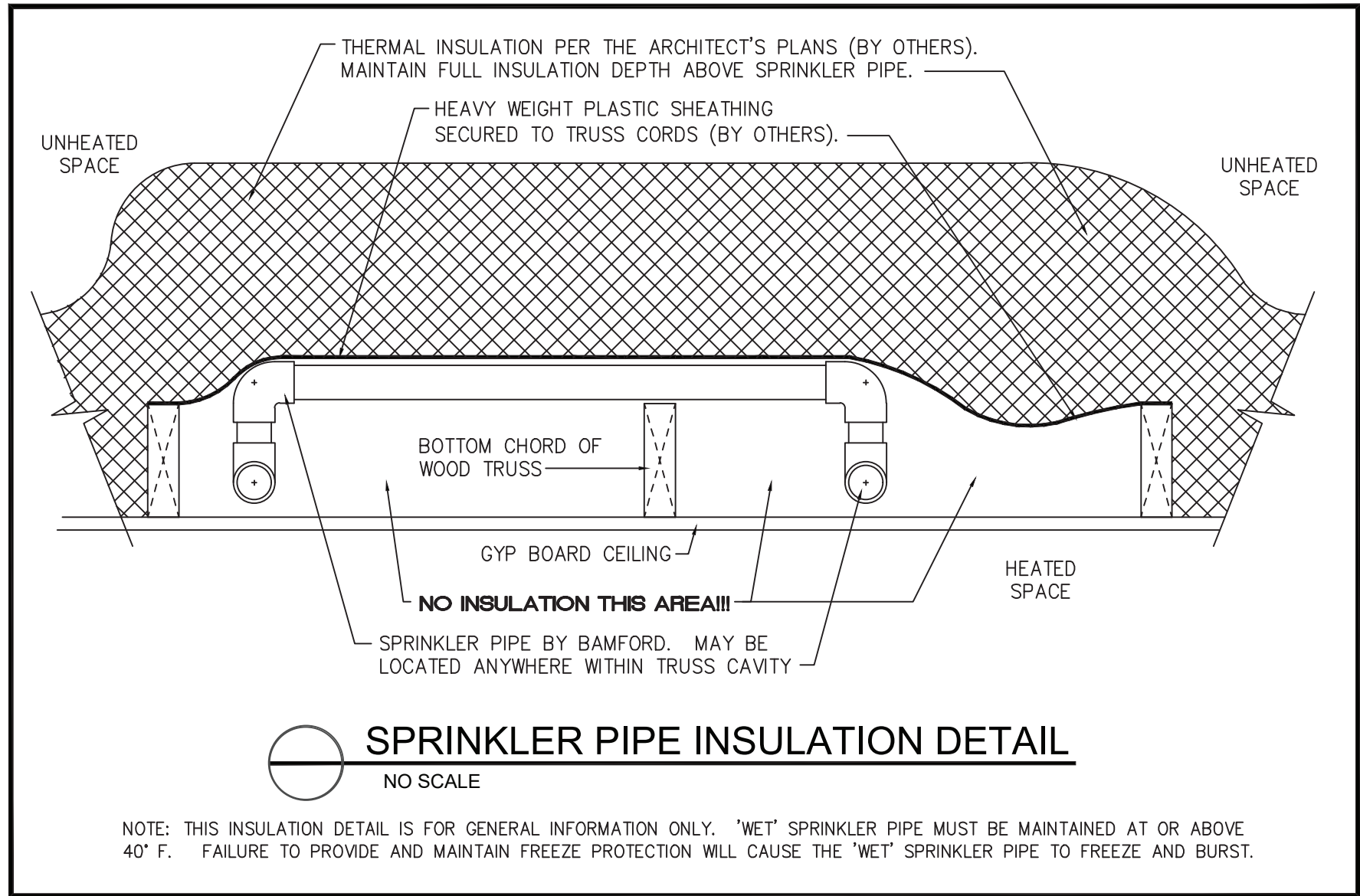


TABLE 9.2.2.1(g) MAXIMUM DISTANCE BETWEEN HANGERS (FT-IN.)													
PIPE TYPE	NOMINAL PIPE SIZE (IN.)												
	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	
STEEL PIPE EXCEPT THREADED LIGHTWALL	N/A	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0	
THREADED LIGHTWALL	N/A	12-0	12-0	12-0	12-0	12-0	12-0	N/A	N/A	N/A	N/A	N/A	
COPPER TUBE	8-0	8-0	10-0	10-0	10-0	12-0	12-0	15-0	15-0	15-0	15-0	15-0	
CPVC	5-6	6-0	6-6	7-0	8-0	9-0	10-0	N/A	N/A	N/A	N/A	N/A	

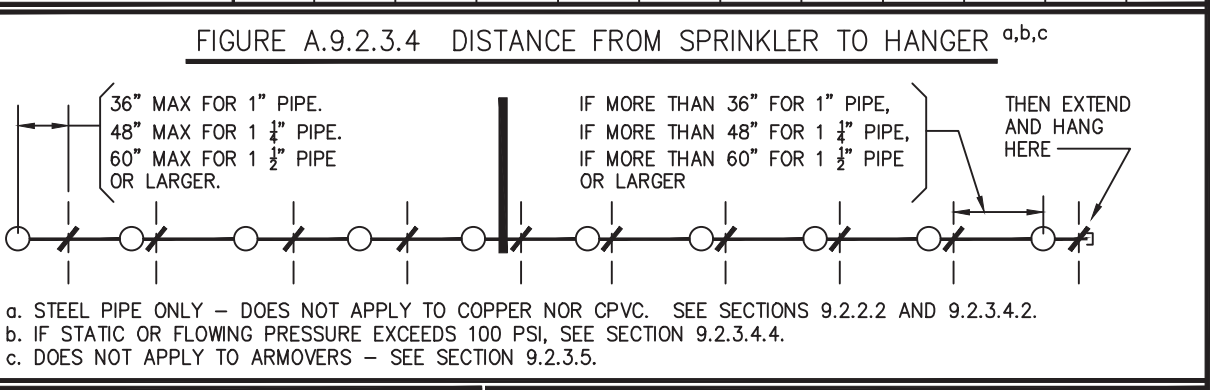
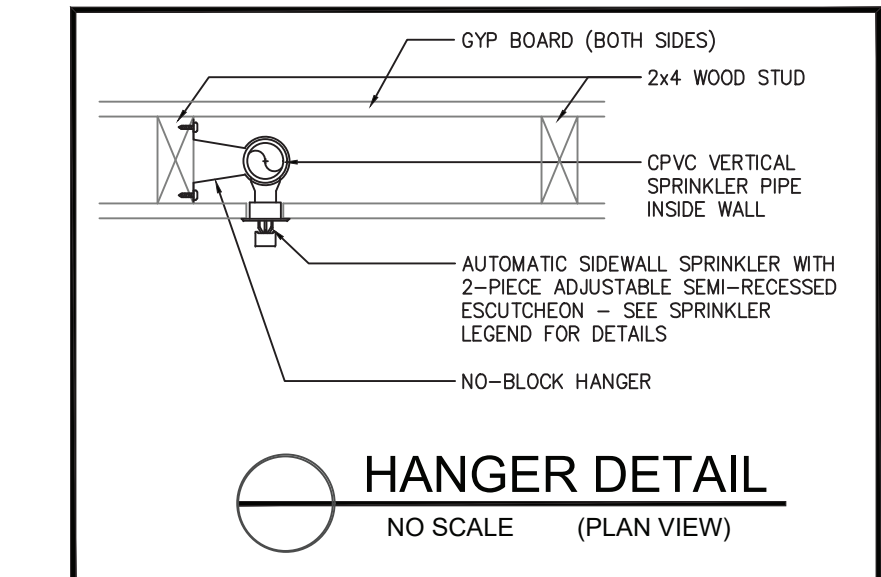


TABLE 9.1.2.1 HANGER ROD SIZE				MAXIMUM DISTANCE BETWEEN VERTICAL SUPPORTS	
PIPE SIZE	ROD DIAMETER	PIPE TYPE	MAXIMUM DISTANCE		
UP TO AND INCLUDING 4"	3/8"	STEEL	25' (SEE NFPA 13 FOR ADDITIONAL REQUIREMENTS)		
5", 6" AND 8"	1/2"	CPVC	10' (OR AT EACH FLOOR LEVEL, WHICHEVER IS LESS)		

HANGER SPACING CHART



5-12-2025



MISSOURI PE COA #2016025677
Engineering, LLC
1624 N Glen Elyn
Independence, MO 64056
816-516-9540

BAMFORD FIRE SPRINKLER Co., Inc.

5134 MERRIAM DRIVE - SHAWNEE MISSION, KANSAS 66203
(913) 432-6686 FAX: (913) 432-5294 E-MAIL: markm@bamfordfire.com

DOUGLAS STATION APARTMENTS
NW SIOUAN & NE SYCAMORE ST
LEE'S SUMMIT, MISSOURI

PROJECT:

DATE DRAWN: 5-5-2025
REVISION DATE:
PROJECT NO:

23

HYDRAULIC DESIGN AREA #C1
BUILDING 5 3rd FLOOR B1 UNIT
NODES C1A, C1B, C1C
CALC OUTLET C1A @ 16 GPM (16'x16" SPACING)
CALC OUTLET C1B @ 16 GPM (16'x16" SPACING)
CALC 3 TOTAL SPRINKLERS
DEMAND @ NODE "BRC" = 57 GPM @ 63.8 PSI
DEMAND @ NODE "PC1" = 57 GPM @ 74.7 PSI

NOTE:
All vertical pipes up from 2nd floor and
all horizontal pipes on 3rd floor are 1".

HYDRAULIC DESIGN AREA #C2
BUILDING 5 3rd FLOOR A2 UNIT
NODES C2A, C2B, C2C
CALC ALL OUTLETS @ 16 GPM (16'x16" SPACING)
CALC 3 TOTAL SPRINKLERS
DEMAND @ NODE "BRC" = 50 GPM @ 47.8 PSI
DEMAND @ NODE "PC1" = 50 GPM @ 58.7 PSI

BUILDING TYPE 'C' 3rd FLOOR
1/8" = 1'-0" (Finish Floor = 121'-4.25")
Buildings 1, 2, and 5

NOTE:
All vertical pipes up from 1st floor, all
horizontal pipes on 2nd floor and
horizontal pipes on 3rd floor are 1".

BUILDING TYPE 'C' 2nd FLOOR
1/8" = 1'-0" (Finish Floor = 110'-8.5")
Buildings 1, 2, and 5

CLUBHOUSE 1st FLOOR
1/8" = 1'-0" (Finish Floor = 100'-0")
Building 5

SPRINKLER LEGEND - BUILDING 'C' (TYPICAL OF 2)													
SYMBOL	QUANTITY	MANUFACTURE	MODEL	RESPONSE	TYPE	SPRINKLER Ø	FINISH	THREAD	W/FACTOR	TEMP	TYPE	DESCRIPTION	NOTES
260	Reliable	FIRes44	Residential	HSW	R3531	White	1/2"	4.4	155	Semi-Recessed	White		
36	Reliable	FIRes44	Residential	HSW	R3531	Chrome	1/2"	4.4	175	Semi-Recessed	Chrome		
1	Reliable	FIFR	Quick	HSW	R3635	Brass	1/2"	5.6	200	None	N.A.		
12	Reliable	F3QR56	Quick	Dry HSW	R5734	Chrome	1"	5.6	200	Standard	Chrome		
24	Reliable	DH56	Quick	EC Dry HSW	RA1664	Chrome	1"	5.6	200	Standard	Chrome		
												Total Sprinklers (single Building 'C' only)	333
												Total Sprinklers (all 2 'C' Buildings)	666

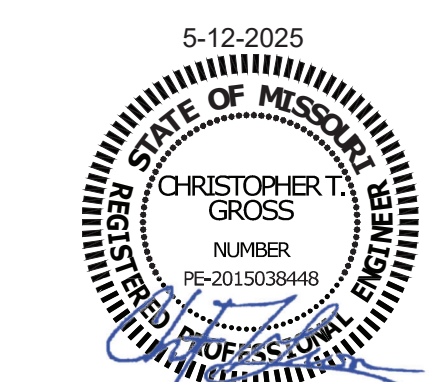
SPRINKLER LEGEND - BUILDING 'CLUBHOUSE'													
SYMBOL	QUANTITY	MANUFACTURE	MODEL	RESPONSE	TYPE	SPRINKLER Ø	FINISH	THREAD	W/FACTOR	TEMP	TYPE	DESCRIPTION	NOTES
242	Reliable	FIRes44	Residential	HSW	R3531	White	1/2"	4.4	155	Semi-Recessed	White		
34	Reliable	FIRes44	Residential	HSW	R3531	Chrome	1/2"	4.4	175	Semi-Recessed	Chrome		
1	Reliable	FIFR	Quick	HSW	R3635	Brass	1/2"	5.6	200	None	N.A.		
13	Reliable	F3QR56	Quick	Dry HSW	R5734	Chrome	1"	5.6	200	Standard	Chrome		
24	Reliable	DH56	Quick	EC Dry HSW	RA1664	Chrome	1"	5.6	200	Standard	Chrome		
4	Reliable	FIFR56	Quick	PENDENT	RA1414	Chrome	1/2"	5.6	155	2-Pc Extended	Chrome	1	
18	Reliable	FIRes49	Residential	PENDENT	R3516	White	1/2"	4.9	155	2-Pc Extended	White	1	
												Total Sprinklers (single 'Clubhouse' only)	336
												Total Sprinklers (all 1 'Clubhouse' Buildings)	336

- KEY NOTES***
- Closet/pantry not sprinklered per NFPA 13R section 6.6.3.
 - Bathroom not sprinklered per NFPA 13R section 6.6.2.
 - 4" underground fire protection service (by others). See site plan for continuation.
 - 2" system riser - see detail on sheet FP1.
 - 4" Storz (on 30" bend) x 4" NPT fire department connection installed approximately 3' above finish grade. @ plate to read "AUTO SPRINK", 4" Storz plug. Locate FDC on side of Water Room that is nearest to the closest fire hydrant.
 - Ham/strafe alarm mounted above FDC - 120 VAC (wiring by others).
 - 2" HDPE under-slab transfer pipe. This pipe installed under the Stair/Corridor concrete slab (by others). Both ends shall terminate with a 2" male NPT adapter approximately 1'-0" AFF.
 - 1-1/2" up/down to HDPE under-slab transfer pipe. See keynote 7.
 - 1-1/4" up/down to HDPE under-slab transfer pipe. See keynote 7.
 - 3/4" up to 2nd Floor.
 - 3/4" up from 1st Floor and 3/4" up to 3rd Floor.
 - 3/4" up from 2nd Floor.
 - 3/4" up from 2nd floor and out to "dry" sidewall sprinkler protecting patio/balcony. This section of sprinkler pipe will be "exposed to view" unless concealed by a soffit or decorative cover (soffit or decorative cover by others). See detail.
 - Install this sprinkler pipe in attic space as low as possible. All thermal insulation must be installed ABOVE this pipe, NOT BELOW IT. Sprinkler pipe may need to be "tented" to prevent thermal insulation from falling below it. Insulation and tenting is by others. See detail.
 - 3/4" up to 3rd Floor.
 - 1" up to 2nd Floor.
 - 1" up from 1st Floor and 3/4" up to 3rd Floor.
 - 2" up/down to HDPE under-slab transfer pipe. See keynote 7.
 - 1" up from 1st Floor and 1" up to 3rd Floor.
 - 1" up to 3rd Floor.
 - 1" up from 2nd Floor.

HYDRAULIC DESIGN AREA #CH1
BUILDING 5 CLUBHOUSE
NODES CH1, CH2, CH3, CH4
CALC ALL OUTLETS @ 13 GPM (16'x16" SPACING)
CALC 4 TOTAL SPRINKLERS
DEMAND @ NODE "BRC" = 59 GPM @ 39.5 PSI
DEMAND @ NODE "PC1" = 59 GPM @ 50.4 PSI

NOTE:
SECOND AND 3RD FLOORS OF THE CLUBHOUSE
BUILDING ARE IDENTICAL TO THE 2ND AND 3RD
FLOORS OF THE TYPE 'C' BUILDING. SEE
2/FP3 AND 3/FP3 RESPECTIVELY.

NOTE:
All vertical pipes up to 2nd
floor are 1".



MISSOURI PE COA #2016025677
Engineering, LLC
1624 N Glen Elyn
Independence, MO 64056
816-516-9540

DATE DRAWN: 5-5-2025
REVISION DATE: 5-5-2025
PROJECT: DOUGLAS STATION APARTMENTS
NW SIOAN & NE SYCAMORE ST
LEE'S SUMMIT, MISSOURI

DESIGN CRITERIA:
NFPA STANDARD (FOR DOWN DRIVING)

DESIGNER: FEX
CHECKED THIS SHEET: 1.474
TOTAL SPRINKLERS: 1,474
AS NOTED
CONTRACT NO.: 25M-9554
BY: RUSSEN

BAMFORD FIRE SPRINKLER Co., Inc.
5134 MERRIAM DRIVE - SHAWNEE MISSION, KANSAS 66203
(913) 432-6686 FAX: (913) 432-6294 E-MAIL: markm@bamfordfire.com

PROJECT: DOUGLAS STATION APARTMENTS
NW SIOAN & NE SYCAMORE ST
LEE'S SUMMIT, MISSOURI